Non-autonomous diffusion in networks

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By network we mean a connected finite simple graph and we are interested in a diffusion process taking place along the edges of this graph, which is governed by non-autonomous transmission conditions at the vertices. Also the diffusion coefficients may depend on time.

First we will overview the non-autonomous form methods and results developed in [2]. Using this results we can prove existence and uniqueness of solutions to our problem. Next we investigate when the solutions are positive and study their long-term behavior. The main reference for the project is [1].

References

[1] W. Arendt, D. Dier, M. Kramar Fijavž, *Diffusion in networks with time-dependent transmission conditions*, Appl. Math. Optim., **69** (2014), 315–336. DOI: 10.1007/s00245-013-9225-1. `http://arxiv.org/abs/1303.4951`.

[2] W. Arendt, D. Dier, H, Laasri, E.M. Ouhabaz, *Maximal Regularity for Evolution Equations Governed by Non-Autonomous Forms* Adv. Diff. Eq, **19** (2014), 1043–1066. `http://projecteuclid.org/euclid.ade/1408367288`.